

REMARKS

Reconsideration of the above-identified patent application in view of the proposed amendment above and the remarks below is respectfully requested.

No claims have been canceled or added in this paper. Claims 1, 4 and 23 have been amended in this paper. Therefore, claims 1-6, 8-15 and 17-25 are pending and are under active consideration.

The drawing replacement sheet for Fig. 1 that was submitted with the Amendment of January 22, 2004, stands objected to “because it introduces new matter into the specification.” In support of the objection, the Patent Office states the following:

The new elements 15-1 and 15-2 do not appear to correspond to old element 15, and illustrate features which were not described in the specification as originally filed. The orientation of element 61 and the shape of element 67 are different in original Figure 1 and revised Figure 1. Revised Figure 1 shows layers between elements 19 and 31 and between layers 21 and 33 which are not shown in the original Figure 1, and which were not originally described in the specification.

Applicants respectfully traverse the foregoing objection. Insofar as the foregoing objection is predicated on the contention that elements 15-1 and 15-2 “do not appear to correspond to old element 15, and illustrate features which were not described in the specification as originally filed,” Applicants respectfully disagree. Original Fig. 1 depicts, among other things, two identical compression pads, one compression pad being positioned between cells 13-1 and 13-2 and the other compression pad being positioned against the opposite face of cell 13-2. Although the specification refers to the two compression pads as compression pads 15-1 and 15-2, only one of these two compression pads was labeled by reference numerals in original Fig. 1, the labeled compression pad merely being identified by reference numeral “15.” The only changes that were made to original Fig.

1 in amended Fig. 1 were (i) that reference numeral “15” was changed to “15-2” and (ii) that a reference numeral “15-1” was added to identify the other compression pad shown in Fig. 1. **Except for the changing of “15” to “15-2” and the addition of “15-1,” no other changes of any type were made to original Fig. 1 in amended Fig. 1.** Applicants are enclosing herewith photocopies of original Fig. 1 and amended Fig. 1. Applicants respectfully submit that, upon inspection of the enclosed photocopies, the Patent Office will confirm that, except for the aforementioned changing of “15” to “15-2” and the addition of “15-1,” the two sheets are indistinguishable. Consequently, Applicants respectfully disagree with the Patent Office’s contentions that “new elements 15-1 and 15-2 do not appear to correspond to old element 15, and illustrate features which were not described in the specification as originally filed” and that “[t]he orientation of element 61 and the shape of element 67 are different in original Figure 1 and revised Figure 1.” Similarly, Applicants respectfully disagree with the Patent Office’s contention that “[r]evised Figure 1 shows layers between elements 19 and 31 and between layers 21 and 33 which are not shown in the original Figure 1, and which were not originally described in the specification.” As noted above, no changes were made to Fig. 1, except for the changing of “15” to “15-2” and the addition of “15-1.”

Accordingly, for at least the above reasons, the foregoing objection should be withdrawn.

The Amendment of January 22, 2004 is further objected to under 35 U.S.C. 132 “because it introduces new matter into the disclosure.” In support of the objection, the Patent Office states the following:

Support for the limitation of the reinforcing member “being dimensioned to provide external radial support to said first and second cell frames” does not appear in applicants’ specification as filed. Applicants’ specification states “reinforcing member 71 is dimensioned to peripherally surround both of cells 13-1 and 13-2 in

such a way...so as to provide external support thereto...” However, there is no suggestion that such external support is necessarily radial. Applicants assert support for the present amendments to claim 1 may be found in Figs. 1 and 3 of the present application which show a pair of axially stacked cells 13-1 and 13-2 radially surrounded and supported by a reinforcing member 71. However, the figures do not appear to suggest radial support, since the reinforcing member 71 is illustrated as spaced apart from the fuel cell frames.

Applicants respectfully traverse the foregoing objection. As best understood by Applicants, the Patent Office is apparently contending that, although the original disclosure states that the reinforcing member peripherally surrounds the first and second cells to provide external support thereto, the original disclosure allegedly does not provide support for claim language reciting that the reinforcing member provides external radial support to the first and second cell frames. Applicants respectfully disagree. The present specification, on page 25, last sentence, provides as follows: “A reinforcing cylinder made of metal or rigid plastic peripherally surrounds the plurality of cells and provides structural support to the cell frames as they expand radially due to increasing temperature and/or internal fluid pressure.” (Emphasis added.) Therefore, it is clear from the foregoing sentence that the type of support that is provided by the reinforcing member to the cell frames is radial support since the cell frames are said to expand radially with increasing temperature and/or internal fluid pressure.

Moreover, insofar as the Patent Office is contending that “the figures do not appear to suggest radial support, since the reinforcing member 71 is illustrated as spaced apart from the fuel cell frames,” the present specification explains that “a small gap is provided between the frame and reinforcing member at ambient pressure and temperature, said gap being sized to disappear at operating pressure and temperature so that the reinforcing member externally supports the frame”

(page 9, lines 12-14) and that “[r]einforcing member 71...is cylindrical in shape to match the shape of cells 13-1 and 13-2 and is dimensioned to peripherally surround both of cells 13-1 and 13-2 in such a way as to be spaced slightly from the cells under ambient temperature and pressure (see gap 72 in Figs. 1 and 3) and yet so as to provide external support thereto (and, in particular, to provide support to frames 35 and 37) when the frames are expanded by the operating fluid pressure and/or temperature.” Given that the reinforcing member peripherally surrounds the cell frames and that the gap between the reinforcing member and the cell frames disappears when the frames are expanded so that the reinforcing member provides support to the cell frames, it is clear that the type of support that is provided by the reinforcing member to the cell frames is radial support.

Accordingly, for at least the above reasons, the foregoing objection should be withdrawn.

Claims 1-25 stand rejected under 35 U.S.C. 112, first paragraph, “as failing to comply with the written description requirement.” In support of the rejection, the Patent Office states the following:

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), as the time the application was filed, had possession of the claimed invention. As discussed above, the limitation of a reinforcing member “being dimensioned to provide external radial support to said first and second cell frames” is considered to be new matter.

Applicants respectfully traverse the foregoing rejection. The foregoing rejection is apparently predicated on the contention that there is no support in the specification for the claim limitation that the reinforcing member provides external radial support to the first and second cell frames. However, as explained above, there is ample support for this claim limitation in the specification.

Accordingly, for at least the above reasons, the foregoing rejection should be withdrawn.

Claims 3-6, 8-9, 12-15, 17-22 and 24-25 do not stand rejected on the basis of any prior art. Accordingly, Applicants respectfully submit that these claims should be allowed at once.

Claims 1, 2, 10, 11 and 23 stand rejected under 35 U.S.C. 102(a) “as being anticipated by Tomson, US Patent 6,322,920.” In support of the rejection, the Patent Office states the following:

Tomson discloses a fuel cell stack enclosed within a plastic membrane. The membrane may be made composite, with a heat shrinking gas barrier inner layer and a tougher, external heat shrinking layer. (Column 5, lines 24-37 and Fig. 8.) The close-fitting heat shrinking layers will provide external radial support to the fuel cell frames.

Applicants respectfully traverse the foregoing rejection.

Insofar as the foregoing rejection pertains to claim 1, Applicants note that claim 1 has been amended herein and now recites “[a]n electrochemical cell stack comprising:

(a) a first proton exchange membrane (PEM) electrochemical cell, said first PEM electrochemical cell comprising a first cell frame;

(b) a second PEM electrochemical cell, said first and second PEM electrochemical cells being stacked axially in a bipolar configuration, said second PEM electrochemical cell comprising a second cell frame; and

(c) a reinforcing member peripherally surrounding both said first cell frame of said first PEM electrochemical cell and said second cell frame of said second PEM electrochemical cell, said reinforcing member being a rigid member dimensioned to provide external radial support to said first and second cell frames.”

Claim 1 is neither anticipated by nor rendered obvious over Tomson for at least the reason that Tomson fails to teach or to suggest an electrochemical stack comprising, among other things,

a reinforcing member in the form of a rigid member dimensioned to provide external radial support to a first cell frame of a first PEM electrochemical cell and a second cell frame of a second PEM electrochemical cell. Instead, Tomson is limited to disclosing a fuel cell stack surrounded by a heat shrinkable film or membrane.

Support for the amendment to claim 1 may be found in claim 3, as well as on page 6, line 21, and on page 13, line 17, of the present specification.

Claim 2 depends from claim 1 and is patentable over Tomson based at least on its dependency from claim 1.

Claim 10 is patentable over Tomson for at least the reason that Tomson fails to teach or to suggest each and every limitation of the claimed first and second PEM electrochemical cells. For example, claim 10 requires that each of first and second PEM electrochemical cells comprises (i) first and second electrically-conductive, spaced apart, generally parallel separators; (ii) a PEM disposed between the first and second separators; (iii) an anode positioned between said PEM and said first separator and electrically coupled to said PEM; (iv) a cathode positioned between said PEM and said second separator and electrically coupled to said PEM; (v) first electrically-conductive means for forming a fluid cavity between the anode and the first separator; (vi) second electrically-conductive means for forming a fluid cavity between the cathode and the second separator; and (vii) a pair of cell frames, one of the cell frames being in peripheral contact with the first electrically-conductive means, the other of the cell frames being in peripheral contact with the second electrically-conductive means. By contrast, Tomson does not teach or suggest, for example, a pair of cell frames wherein one cell frame is in peripheral contact with a first electrically-conductive means for forming a fluid cavity between an anode and a first separator and another cell frame is in

peripheral contact with a second electrically-conductive means for forming a fluid cavity between a cathode and a second separator.

Claim 11 depends from claim 10 and is patentable over Tomson based at least on its dependency from claim 10.

Claim 23 is patentable over Tomson for the same reasons discussed above in connection with claim 1. In addition, claim 23 is patentable over Tomson for at least the reason that Tomson does not teach or suggest a first reinforcing member peripherally surrounding the cell frames of a first plurality of PEM electrochemical cells and a second reinforcing member peripherally surrounding the cells frames of a second plurality of PEM electrochemical cells.

Accordingly, for at least the above reasons, the foregoing rejection should be withdrawn.

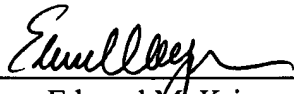
In conclusion, it is respectfully submitted that the present application is in condition for allowance. Prompt and favorable action is earnestly solicited.

If there are any fees due in connection with the filing of this paper that are not accounted for, the Examiner is authorized to charge the fees to our Deposit Account No. 11-1755. If a fee is

required for an extension of time under 37 C.F.R. 1.136 that is not accounted for already, such an extension of time is requested and the fee should also be charged to our Deposit Account.


Respectfully submitted,

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Dated: June 28, 2004

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 28, 2004.


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Dated: June 28, 2004